.....

(Original Signature of Member)

115TH CONGRESS
1ST SESSION

H. R. _____

To direct the National Science Foundation to award grants to encourage young girls to participate in computer science and other STEM activities, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

Ms. ROSEN introduced the following bill; which was referred to the Committee on _____

A BILL

To direct the National Science Foundation to award grants to encourage young girls to participate in computer science and other STEM activities, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the ''Code Like a Girl Act''.

SEC. 2. FINDINGS.

The Congress finds the following:

(1) Growth in the STEM workforce is dominated by new computing jobs, and the Nation needs to leverage all of its human capital to meet the demand. The Bureau of Labor Statistics projects that, of all the new STEM occupations created from 2014 to 2024, nearly two-thirds will be computing jobs.

(2) More work is needed to ensure women are equally represented in the computer science workforce. According to the Bureau of Labor Statistics, in 2016, women held more than 51 percent of all professional occupations in the United States, but only 26 percent of the computing-related occupations. This is compared with the all-time peak of 26 percent of the computing-related occupations in 1991.

(3) The gender disparity in computer science extends down through all levels of education. In 2016, only 23 percent of AP Computer Science exam takers were female. The number of computer science degrees awarded to women has steadily declined for bachelor's degree earners from 29 percent in 1995 to just 18 percent in 2014.

(4) A 2010 study funded by the National Science Foundation found that a majority of both women and men scientists and Ph.D students be-

came interested in science before middle school. Women scientists in this study were more likely than men to mention teachers as the source of their initial interest in science, substantiating the need for teachers to engage young girls in the classroom.

(5) Gender disparities are also observed at the earliest levels of education. Studies have shown that, at around six years old, girls develop the belief that brilliance is a male characteristic. This negative stereotype, once adopted, is shown to have an immediate effect, as girls start to lose interest in activities they perceive as requiring brilliance.

(6) Research into the cause of the early adoption of this stereotype is limited, but implicit biases held by teachers have been shown to have a negative impact on girls' academic achievement in math and science and on their future decisions to enroll in advanced courses in these subjects.

(7) While significant work is being done to expand access to high quality computer science education for female students at the secondary and postsecondary level, there are few research funding opportunities focused exclusively on girls in early childhood education.

(8) Despite the limited attention being paid to this age group, research has shown that interventions with girls at an early age can reduce the negative impact of gendered stereotypes. Scientists have found that positive experiences with robotics and computing lead to greater interest and self-confidence among girls, even after gender stereotypes about computing have been adopted.

SEC. 3. DEFINITIONS.

In this Act:

(1) DIRECTOR.—The term ''Director'' means the Director of the National Science Foundation.

(2) INSTITUTION OF HIGHER EDUCATION.—The term ''institution of higher education'' has the meaning given the term in section 101(a) of the Higher Education Act of 1965 (20 U.S.C. 1001).

(3) LOCAL EDUCATIONAL AGENCY.—The term ''local educational agency'' has the meaning given the term in section 8101(a) of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 7801(a)), except that such term also includes preschools, after-school programs, and summer programs.

(4) STEM.—The term ''STEM'' means science, technology, engineering, and mathematics, including computer science.

(5) YOUNG GIRLS.—The term ''young girls'' means female individuals who have not attained the age of 11.

SEC. 4. RESEARCH GRANTS.

(a) IN GENERAL.—The Director shall award grants on a competitive basis to institutions of higher education, local educational agencies, or nonprofit organizations (or consortia of such institutions, agencies, or organizations), to accelerate research efforts to increase understanding of the factors that contribute to the willingness or unwillingness of young girls to participate in STEM activities.

(b) RESEARCH AREAS.—Research areas funded by a grant under this section may include—

(1) the role of teacher training and professional development, including effective incentive structures to encourage teachers to participate in such training and professional development, in encouraging or discouraging young girls from participating in STEM activities;

(2) the role of implicit bias in the classroom in shaping young girls' perceptions of STEM and dis-

couraging such girls from participating in STEM activities;

(3) the role of other facets of the learning environment on the willingness of young girls to participate in STEM activities, including learning materials and textbooks, classroom decorations, seating arrangements, use of media and technology, classroom culture, and gender composition of students during group work;

(4) the role of parents and other caregivers in encouraging or discouraging young girls from participating in STEM activities;

(5) the types of STEM activities that encourage greater participation by young girls; and

(6) any other activity the Director determines will accomplish the goals of this section.

(c) GRANT RECIPIENT REPORT.—An entity awarded a grant under this section shall report to the Director, at such time and in such manner as the Director may require, on the activities carried out and materials developed using such grant funds.

SEC. 5. DEVELOPMENT AND TESTING OF SCALABLE MODELS FOR INCREASED ENGAGEMENT.

(a) IN GENERAL.—The Director shall award grants on a competitive basis, to institutions of higher education

or nonprofit organizations (or consortia of such institutions or organizations), to develop and evaluate interventions in pre-K and elementary school classrooms that seek to increase participation of young girls in computer science activities.

(b) PARTNERSHIPS.—In order to be eligible to receive a grant under this section, an institute of higher education, nonprofit organization, or consortium, shall enter into a partnership with one or more local educational agency in carrying out the activities funded by such grant.

(c) USES OF FUNDS.—Grants awarded under this section shall be used for activities that draw upon the expertise of the partner entities described in subsection (b) to increase participation of young girls in computer science activities, including—

(1) offering training and professional development programs, including summer or academic year institutes or workshops, designed to strengthen the capabilities of pre-K and elementary school teachers and to familiarize such teachers with the role of gender bias in the classroom;

(2) offering innovative preservice and in-service programs that instruct teachers on gender-inclusive practices for teaching computing concepts;

(3) developing distance learning programs for teachers or students, including developing curricular materials, play-based computing activities, and other resources for the in-service professional development of teachers that are made available to teachers through the Internet;

(4) developing a cadre of master teachers who will promote reform and the adoption of gender-inclusive practices in teaching computer science concepts in early childhood education;

(5) developing tools to evaluate activities conducted under this section;

(6) developing or adapting pre-K and elementary school computer science curricular materials that incorporate contemporary research on the science of learning, particularly with respect to gender inclusion;

(7) developing and offering gender-inclusive computer science enrichment programs for students, including after-school and summer programs;

(8) providing mentors for girls in person and through the Internet to support such girls in participating in computer science activities;

(9) educating the parents of girls about the difficulties faced by girls to maintain an interest and

desire to participate in computer science activities, and enlisting the help of parents in overcoming these difficulties;

(10) acquainting girls with careers in computer science and encouraging girls to consider careers in such field; and

(11) any other activities the Director determines will accomplish the goals of this section.

(d) GRANT RECIPIENT REPORT.—An entity awarded a grant under this section shall report to the Director, at such time and in such manner as the Director may require, on the activities carried out and materials developed using such grant funds.

(e) EVALUATION REQUIRED.—Not later than 4 years after the date of enactment of this Act, and every 3 years thereafter, the Director shall evaluate the grant program under this section. At a minimum, such evaluation shall—

(1) use a common set of benchmarks and assessment tools to identify best practices and materials developed and demonstrated by the partnerships described in subsection (b); and

(2) to the extent practicable, compare the effectiveness of practices and materials developed and demonstrated by such partnerships with those of

partnerships funded by other local or State government or Federal Government programs.

(f) DISSEMINATION OF RESULTS.—

(1) EVALUATION RESULTS.—The Director shall make publicly available free of charge on an Internet website and shall submit to Congress the results of the evaluation required under subsection (e) .

(2) MATERIALS.—The Director shall ensure that materials developed under a program funded by a grant under this section, that are demonstrated to be effective in achieving the goals of this section (as determined by the Director), are made publicly available free of charge on an Internet website, including through an arrangement with an outside entity.

(g) ANNUAL MEETING.—The Director shall convene an annual meeting of the partnerships participating in a program funded by a grant under this section, for the purpose of fostering greater national collaboration.

(h) TECHNICAL ASSISTANCE.—At the request of a partnership seeking a grant under this section, the Director shall provide the partnership with technical assistance in meeting any requirement of this section, including providing advice from experts on how to develop a quality application for such a grant.

SEC. 6. REPORTING REQUIREMENTS.

(a) ANNUAL REPORT.—The Director shall submit to Congress an annual report on the grant programs established by sections 4 and 5.

(b) REPORT ON PROGRAM EXPANSION.—Not less than 4 years after the first grant is awarded under the grant programs established by sections 4 and 5, the Director shall submit to Congress a report, based on an analysis of the grant recipient reports submitted to the Director pursuant to sections 4(c) and 5(d), that includes a recommendation for how to expand such grant programs.